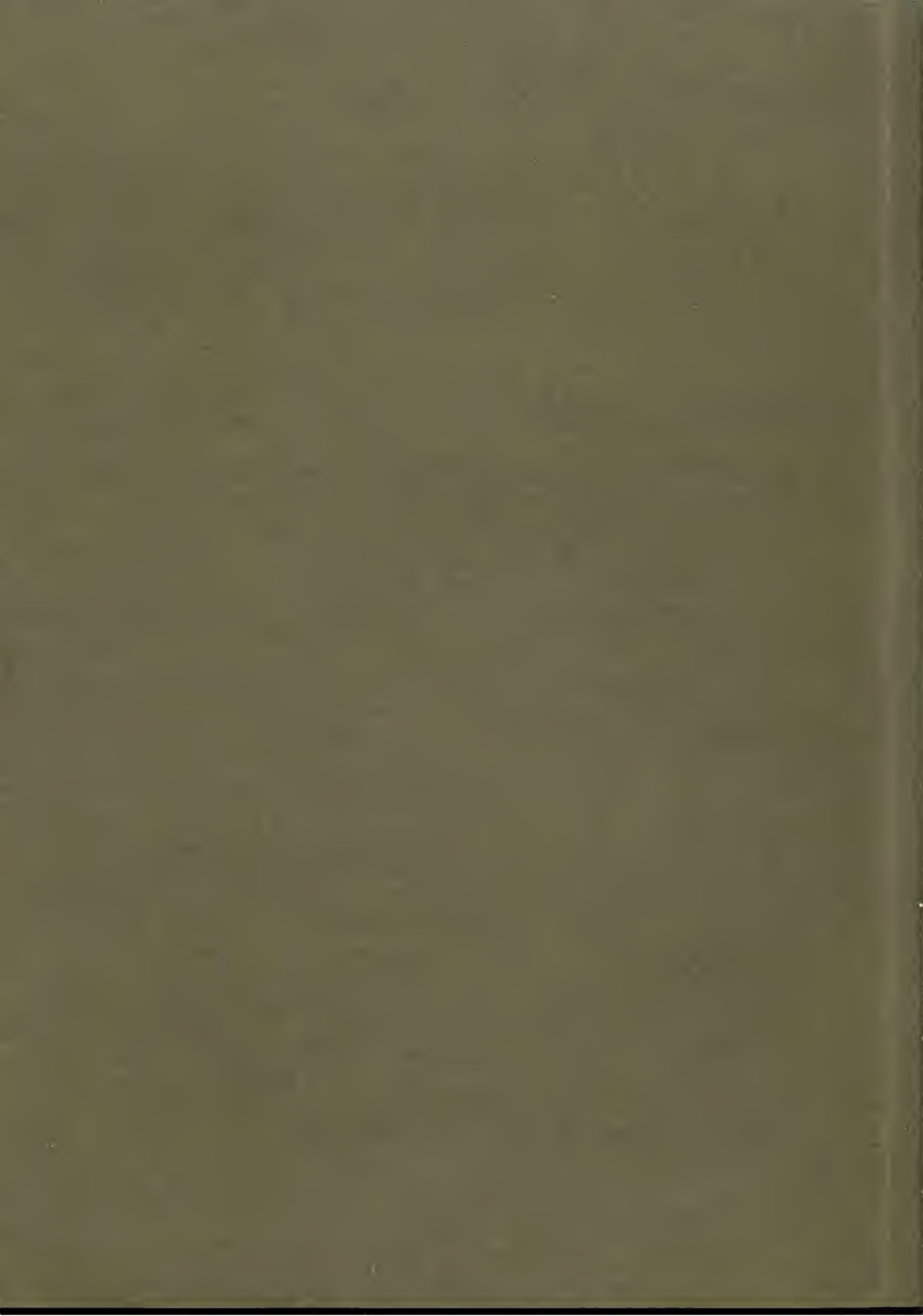


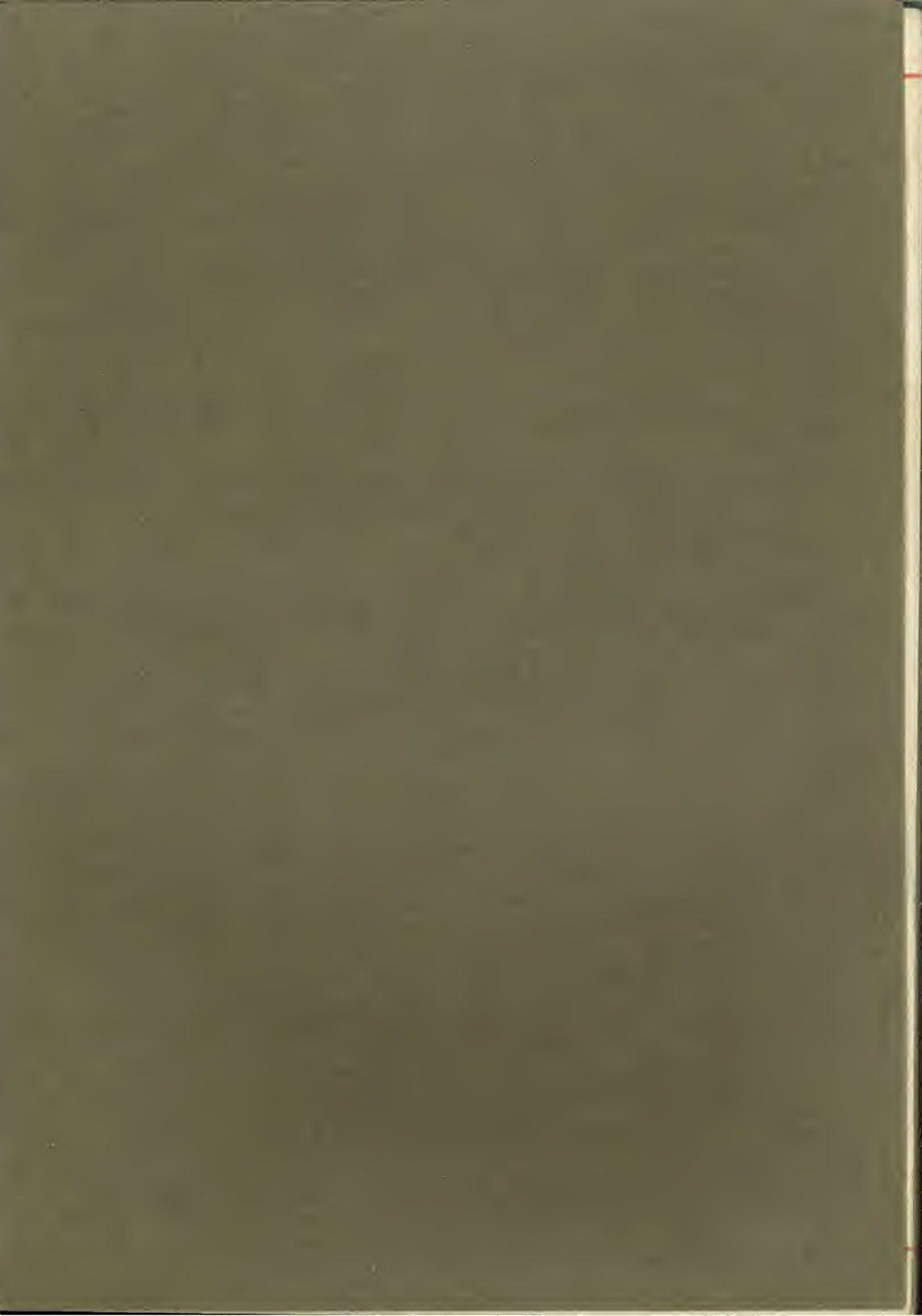


# IDEAL

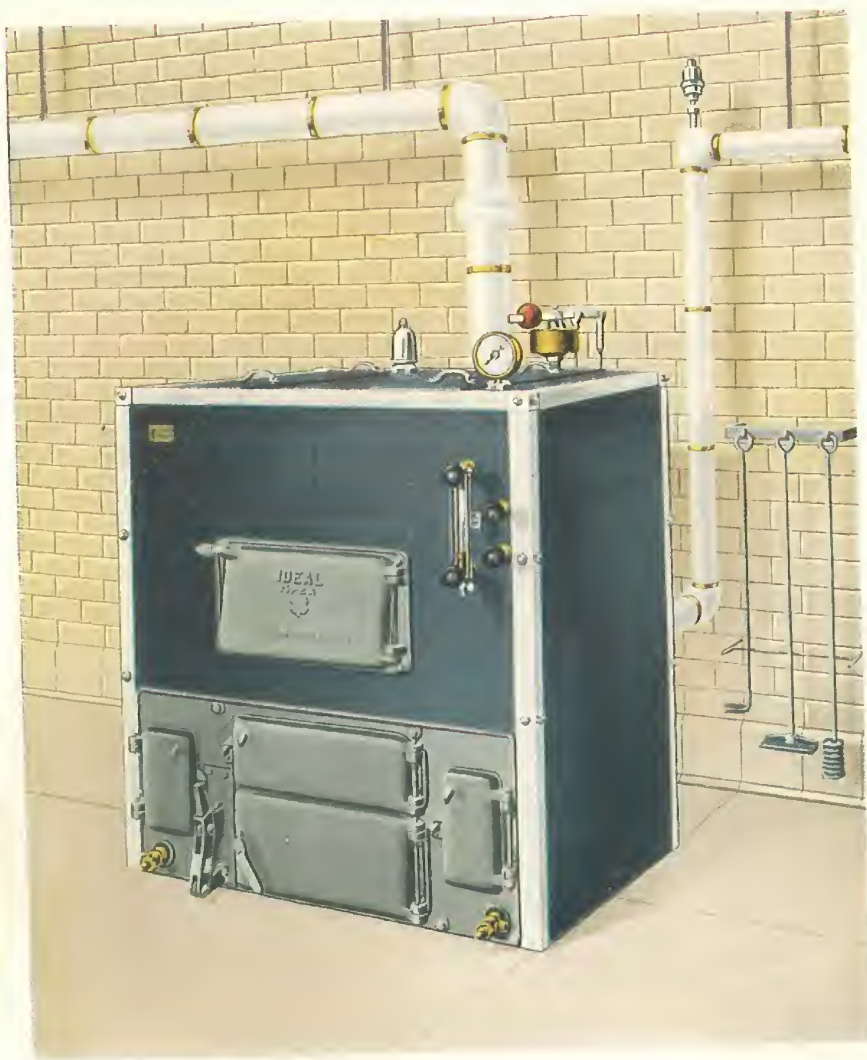
Type A

Heat Machine





I D E A L   T Y P E   " A "   H E A T   M A C H I N E S



IDEAL Type "A" Heat Machine  
(Patented July 20, 1919, other patents pending)

**SAVES ONE-THIRD  
FUEL** and converts the  
cellar into a cheerful,  
livable addition to the  
ideal home

# IDEAL

## TYPE "A" HEAT MACHINES

For residences, apartments, hotels, churches, schools, court houses, stores, depots, theaters, banks, hospitals, institutions, and other buildings. These boilers are particularly adapted for use in batteries



Reg. U. S. Pat. Off.

### AMERICAN RADIATOR COMPANY

Sales branches and showrooms listed on page forty-seven

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## To Meet New Standards of Living



THOSE easy-going days, when fuel was plentiful and cheap, will come no more! Scarcity is now to become our teacher. These intensive times do but usher in a new mechanical era, demanding utilities of highest efficiency—less labor—no waste. The “run-away” fire is about to give place to the *controlled* fire, through scientifically measured heating surfaces and regulation.

Again American enterprise and skill triumph under stirring need, and we are happy to announce to friends and patrons that, in the field of heating research and advanced engineering, this scientific measuring of fuel consumption and control is newly achieved by the IDEAL Type “A” Heat Machines.

The story of the development of this boiler is interesting. It began in Europe about eight years ago, through contact with the conditions in those countries where fuel economy, because of the scarcity and the already high price of coal, had long been the paramount requirement of engineers and users of heating apparatus.

To solve this and allied problems, our affiliated companies in Europe established research laboratories, equipped with complete apparatus for scientific experimentation and recording. And to insure accuracy, the engineering staffs met at regular intervals for conducting joint tests, that practical comparison of progress might be made by each. These co-ordinated efforts finally brought forth a boiler especially adapted to fulfil the most exacting foreign requirements, and the commercial introduction thereof met with unqualified success.

The war demands upon the United States made it apparent that the problem of fuel conservation and domestic labor would henceforth be uppermost with us. Accordingly, the technical staff of the Institute of Thermal Research, founded by the AMERICAN RADIATOR COMPANY at Buffalo, N. Y.—the largest and best equipped laboratory of the kind in the world—determined to improve, if possible, upon the work of their European collaborators.

### Saves One-third of the Fuel Bill

After three years of persistent and elaborate endeavor the IDEAL Type "A" Heat Machine was designed and produced. During 1917 about 100 of these were installed in various classes of buildings throughout the country. Since then thousands more have been installed.

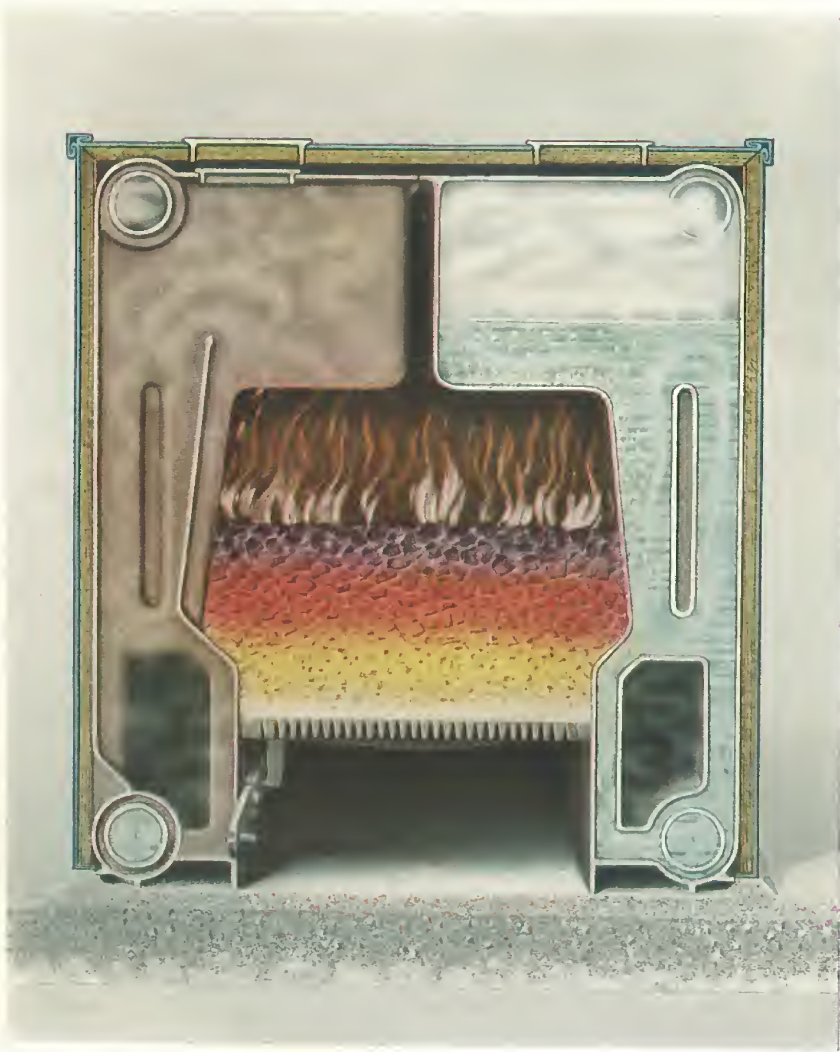
An average *FUEL SAVING OF ONE-THIRD* is shown by the tabulated results of several thousand IDEAL Type "A" Heat Machine installations. They exceed in efficiency and reliability all other types, foreign or domestic, as shown by the data and charts herein presented.

At the same time IDEAL Type "A" Heat Machines embody features of excellence as regards appearance, compactness, insulation, durability, and easy running, which make them distinct, unique. We cordially invite the investigation of all building owners to their merits and superiorities. Calls and correspondence are most welcome.

Faithfully,

AMERICAN RADIATOR COMPANY

July, 1921—Fourth Edition



IDEAL Type "A" Steam Heat Machine. Size 2-A-5, showing flue travel and water circulation. Patented July 20, 1919, other patents pending.



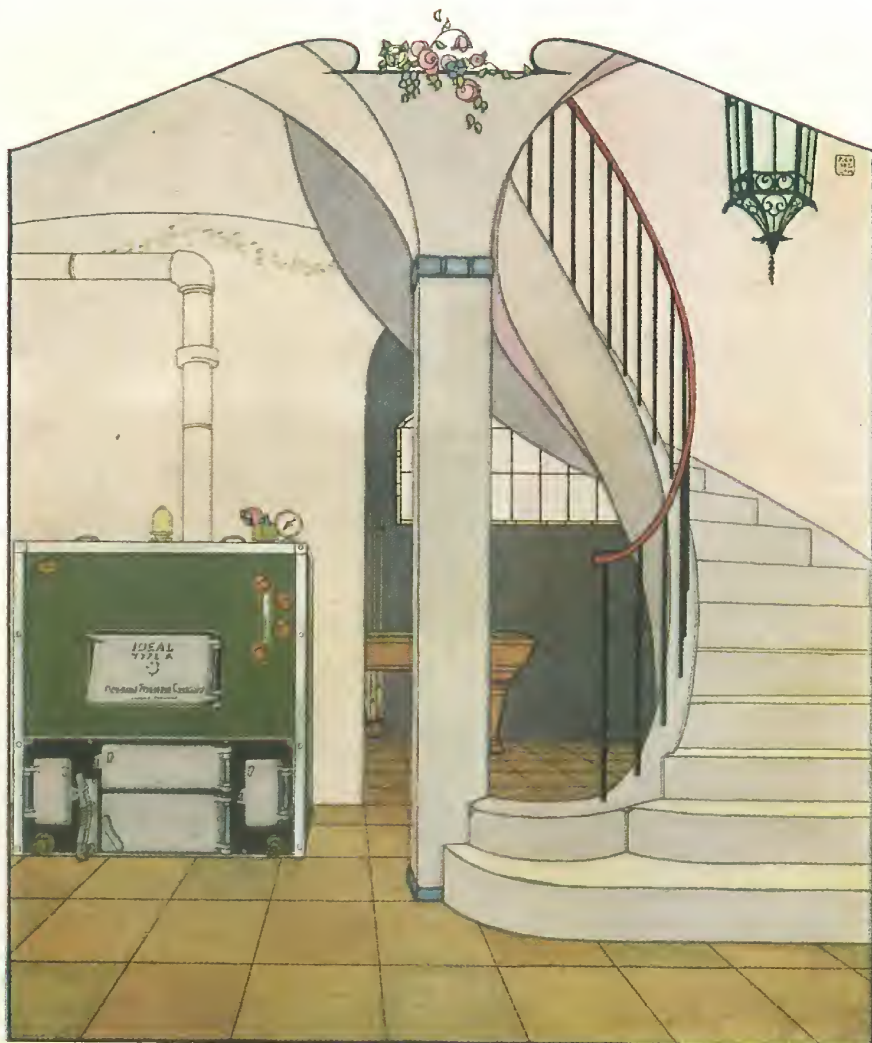


In the IDEAL Type "A" Heat Machine an entirely new craftsmanship is offered. This novel design and scientific construction for the first time makes possible the full utilization of the valuable space in the cellar or basement for use as living or recreational purposes.

The skill in the IDEAL Type "A" Heat Machine construction likewise guarantees the utmost refinement in heating service with a recorded average FUEL SAVING OF ONE-THIRD. This record is tabulated from the results of thousands of IDEAL Type "A" installations.

The IDEAL Metallic Jacket with its inside insulation of a thick layer of asbestos prevents dust or gas from escaping and retains the heat which otherwise would make the basement space uncomfortably and unnecessarily warm. This feature contributes to the remarkable efficiency of this heating boiler as well as gives it a trim, neat appearance for the modern basement.

# IDEAL TYPE "A" HEAT MACHINES

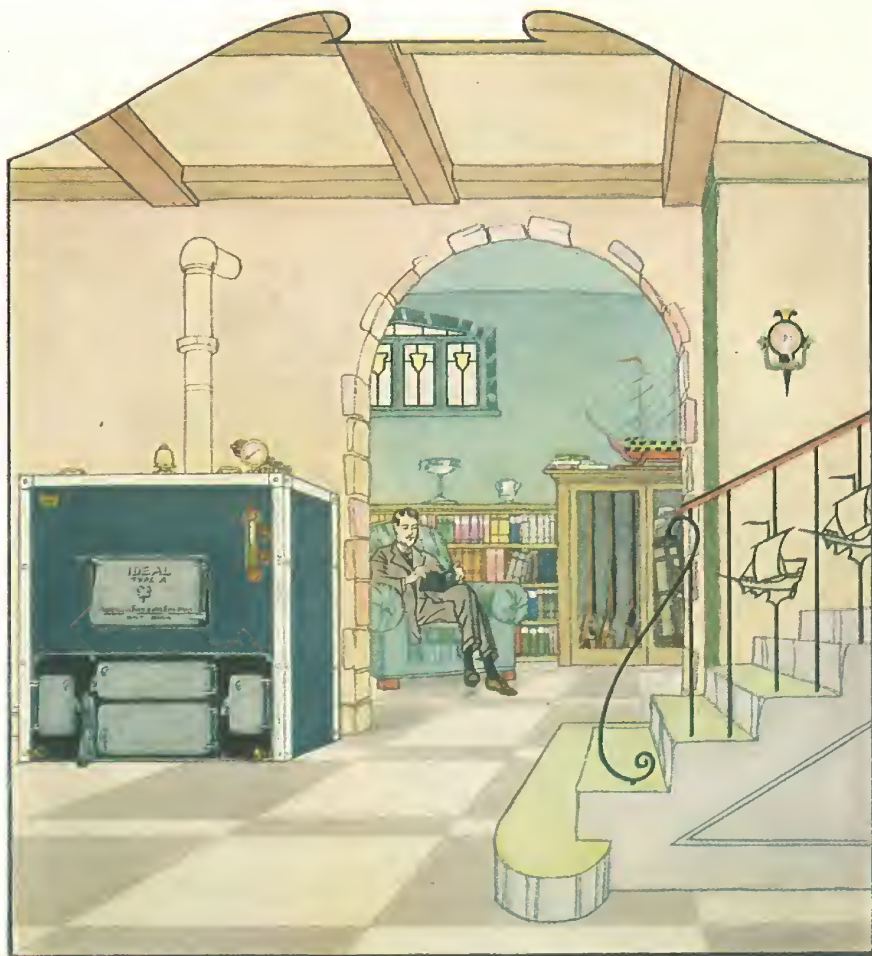


Over 25 percent of the cost of a building goes into the construction of the basement, where a generous or desirable space is usually wasted as a storage room for trash. Over 95 percent of basements are damp, crude, and unattractive places.

The new IDEAL Type "A" Heat Machine with its dust-free and gas-tight metallic jacket, automatic operation, and its great fuel saving, gives the owner an opportunity to utilize his basement space to the best advantage. He can arrange for billiard room, playroom, gymnasium, or dancing room even though that room may adjoin the space in which the IDEAL Type "A" Heat Machine is placed.

The owner will be proud to show the IDEAL Type "A" Heat Machine to his friends because of its handsome appearance and simple, compact construction.

# IDEAL TYPE "A" HEAT MACHINES



"Just as every attic has a past, so every cellar has a future." This pertinent quotation expresses the possibilities of a modern basement which have been brought about by the introduction of the IDEAL Type "A" Heat Machine. The ease of operation, cleanliness, great fuel economy, and handsome design of the IDEAL Type "A" Heat Machine entitle it to be placed in any basement space which may adjoin the den, billiard room, gymnasium or playroom.

The tabulated results of IDEAL Type "A" Heat Machine installations show an average FUEL SAVING OF ONE-THIRD. This means an actual money saving, as well as a saving in coal storage space and caretaking.

The idea of providing recreational quarters in the basement is gaining headway with owners who are remodeling or planning to build, and who have specified IDEAL Type "A" Heat Machines.



# IDEAL TYPE "A" HEAT MACHINES



In many homes, particularly town-houses and apartments, the space for the heating boiler is very small and frequently adjoins the entrance hall right off the street. The IDEAL Type "A" is admirably adapted for houses of this character. The good looking design and finish of the IDEAL Type "A" fits it for placing in any space where it is likely to be in view. Its cleanliness and ease of operation entitle it to be placed close to rooms which are frequently used.

One owner states: "It burned 40 percent less coal this year." This indicates not only a great reduction in his coal bill, but a reduction in coal storage space and a corresponding reduction in the caretaking and handling. The automatic regulation of the IDEAL Type "A" Heat Machine is a remarkable feature. It speeds up or slows down the fire according to the demands of the weather, and keeps the heat in the house equally distributed at all times to all rooms.

We recommend the IDEAL Type "A" Heat Machine to owners of town-houses where basement space is limited and where it is desired to burn coal, oil or gas. Besides great economy in the burning of coal, the IDEAL Type "A" Heat Machine is admirably adapted for use with the most successful types of oil burners.



## Built to Make Satisfied Users

It has ever been the policy of this company when offering a new product, to adopt such measures as will insure complete and continued satisfaction to the *owner*, realizing that a satisfied user is the best advertisement.

The greater efficiency of IDEAL Type "A" Heat Machines is due primarily to three important innovations in their construction:

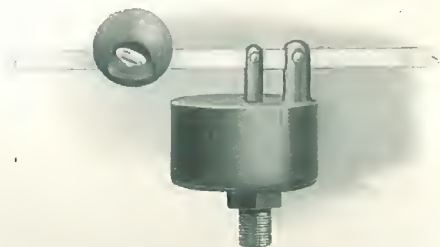
(a) The *Revertible Flue*, which enables the maximum of heat to be extracted from the hot flue gases, with a minimum of resistance.

(b) The *IDEAL Metallic Jacket*, with its thick asbestos lining, insulates the boiler against loss of heat due to radiation and prevents cellar-wasted heat.

(c) The *IDEAL Automatic Regulation*—the result of exhaustive mechanical tests—which affords absolute assurance that the boiler will operate sensitively to meet quick fluctuations in the weather.

Each of these features is fully illustrated and discussed in the following pages; but before specific reference is made to the various elements of construction, the influence of *Regulation* in securing fuel economy should be emphasized, as this influence has not been appreciated to the extent it deserves.

First, lack of proper regulation tends to occasion periodic overheating, which results in the opening of windows throughout the building, and the consequent loss of valuable heat.



IDEAL Steam Regulator

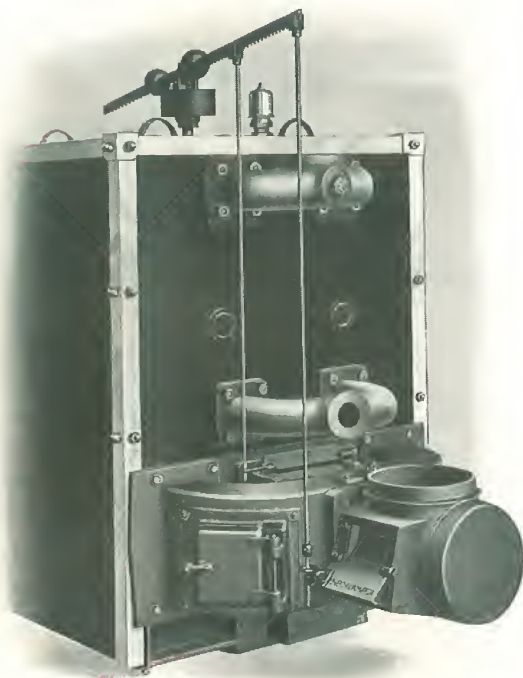
This device automatically controls the draft and check dampers

Sudden acceleration or a rapid decline in the rate of combustion, which quite generally occurs especially where hand control is employed, results in a comparatively high loss in efficiency during such intervals. Brisk firing causes a relative overload which through neglect may be aggravated sufficiently to force an excessive volume of air through the fuel, resulting in a large quantity of gases at a high temperature escaping up the chimney flue without having given up their share of heat to the boiler surfaces.

Again, when a rapid change from a high to a very low rate of combustion is made, the heat in the glowing fuel is so great that to accomplish the desired check the pro-

duction of the gases must be arrested almost entirely. An abrupt check of the draft tends to accumulate a large volume of combustible gas, and a considerable portion thereof will travel unburned through the boiler flues.

Where a building is equipped with a boiler employing hand control regulating method and the temperature falls below that desired, all efforts to correct such condition usually result in over-



**Damper Regulation**

Showing the balanced regulation of draft and check dampers controlled by the IDEAL Steam Regulator

heating. Therefore, unpleasant and unhealthful extremes of temperature are the rule under such regulation.

Some time must elapse before even such an efficient "machine" as the human body can accommodate itself to temperature variations; how much more necessary, therefore, is the close refinement of automatic mechanical heating control.

Although the *average* room temperature for a given period, for example, an entire day, may have been above normal, there are frequent intervals when temperature above and below the average will prevail, and produce a state of discomfort and dissatisfaction to the occupants. The above disadvantages and discomforts, as well as other difficulties, are entirely overcome by the application of the automatic regulation devices supplied with this boiler.

## IDEAL Metallic Jacket

The *IDEAL Metallic Jacket* clearly enhances the appearance of these boilers. On page 24 are set forth additional features of insulation value and other important claims.

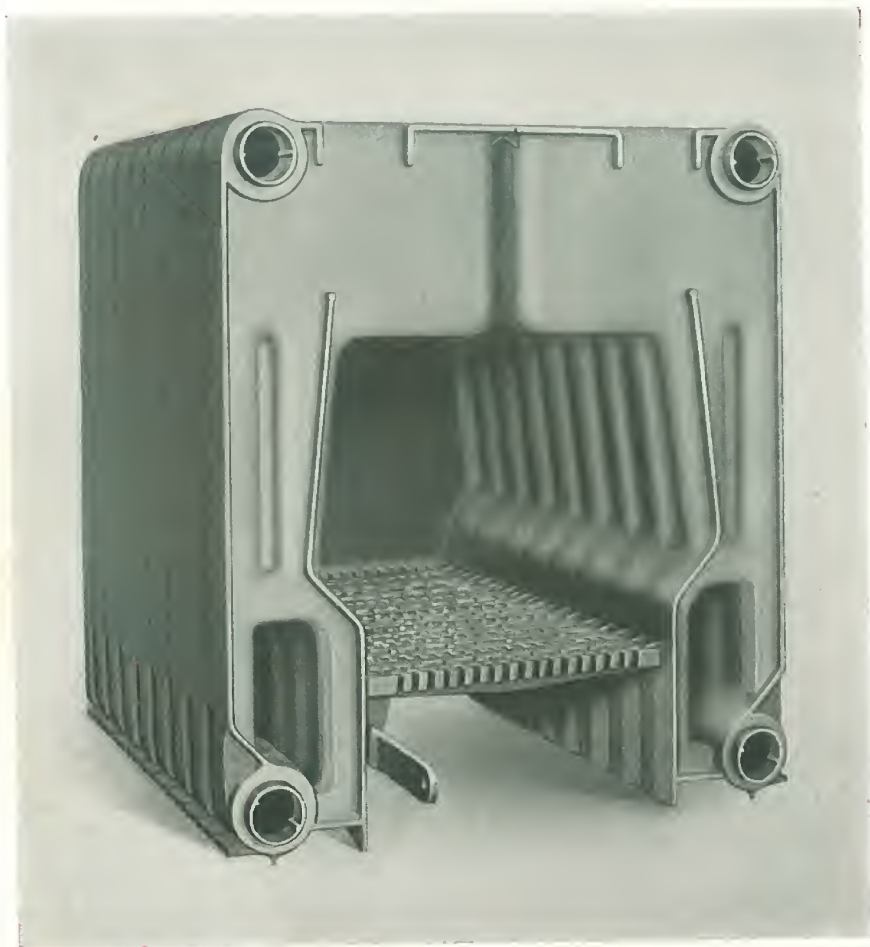
The psychological importance of the mere appeal to the eye of an attractive and symmetrical exterior is often underestimated. The sense of intrinsic value and pride of ownership are largely based on this appeal, and, therefore, the owner or caretaker of this boiler would be less likely to neglect giving it the moderate amount of attention required for successful operation.

The tendency to convert the basement into a cheerful and livable addition to the modern home would seem to warrant the belief that any improvement in the general appearance and tidiness of the boiler and its surroundings will win the instant and unqualified approval and support of the owner, and make for better living conditions.



## Complete and Effective Combustion

Special attention is directed to the roomy combustion chamber, and to the flues which provide a long upward travel of the products of combustion. The large amount of direct heating surface located immediately over the fire



IDEAL Type "A" Heat Machine  
Interior view (jacket and front section removed). Size No. 2



not only extracts a very high percentage of the heat from these gases, but likewise absorbs all the radiation from the glowing surface of the fire. The scientifically measured distance which these gases and the radiant heat travel before impinging directly upon a comparatively cool surface results in a constant high temperature above the fuel, which condition is favorable to the most complete and effective combustion. Every ounce of fuel is thus made to yield its utmost quantity of heat.

The generous proportions of the combustion chamber permit of an exceptionally large fuel charge, and insure the long duration of the fire without attention.

## Full Utilization of Fuel Gases

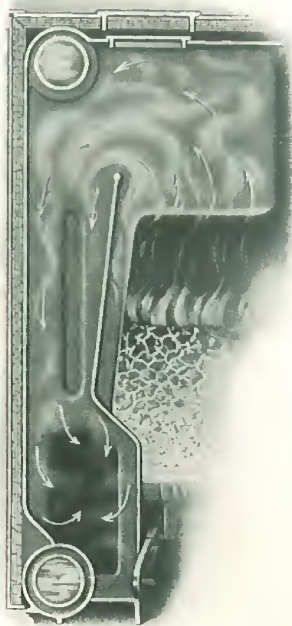
The illustration on page 16 indicates the path of travel of the hot gases as they follow a natural and unobstructed course until the upper portion of the combustion chamber is reached, where they are deflected downward through the *Revertible Flue* at each side. After passing through the revertible flues they emerge therefrom and enter into the *Collecting Flue*, thence proceeding in a horizontal direction to the smokehood at the bottom and rear of the boiler.

Too much emphasis can not be laid upon the high efficiency obtained as a result of this revertible flue travel. The design is in complete harmony with the most advanced scientific theory and practice of heat transmission and flow of gases. The practical results already obtained with IDEAL Type "A" Heat Machines have justified the design and proved most satisfactory and convincing.

It is a law of physics that at constant pressure the density of any gas varies inversely with the temperature, or, in other words, it becomes heavier as it cools, and *vice versa*.

The hot gases surrender a large portion of their heat in rising to the upper part of the combustion chamber, which contains a large proportion of the heating surface of the boiler; then in a somewhat cooler and heavier state these gases enter the revertible flue, the area of which progressively and uniformly decreases throughout its length to correspond with the density of the cooling gases as they descend into the collecting flue. This revertible flue, as a conduit for the gases, embodies the principle of the siphon, which facilitates the draft and assures the maximum extraction of heat from the gases—as a result of which a low stack temperature is obtained.

Deflecting the flow of gases into the revertible flue



A Half-Section

Showing flow of gases and the  
revertible flue principle

occasions a compression, varying with the rate at which the heat is absorbed by the heating surface. This slight compression crowds the gases into complete contact with every particle of heating surface, even at the lowest rate of combustion, resulting in the maximum heat extraction and consequent maximum fuel economy. The importance of the principle will be better appraised when it is recalled that for the greater part of the heating season there is but a very moderate demand on the whole system.

### A Valuable Demonstration

Professor Peclet demonstrated many years ago at the Institute

des Arts et Metiers in Paris, that heated gases traveling downward impinge against every atom of the heating surface within the flue. (See Figs. A and B.) European boiler manufacturers for the past two decades have fully recognized this well-known law, and have embodied the same in their design.

Too great emphasis can not be placed upon the fact that this design and construction make of each section a self-contained unit as regards the relation of flue areas to heating and grate surfaces. In other words, each section is provided with its own properly proportioned amount of flue for the escaping gases, which gases independent of those received from other sections, travel separately directly to the collecting flue.

Regardless of the number of sections contained in the boiler, the relationship between flue area and the heating and grate surfaces is constant. The gas travel in the last section is identical with that of the first. Friction is reduced to a minimum, and the unnecessarily long and tortuous travel of gases is completely eliminated.

### Free, Rapid, Noiseless Circulation

A further fundamental advantage of



Figure A



Figure B

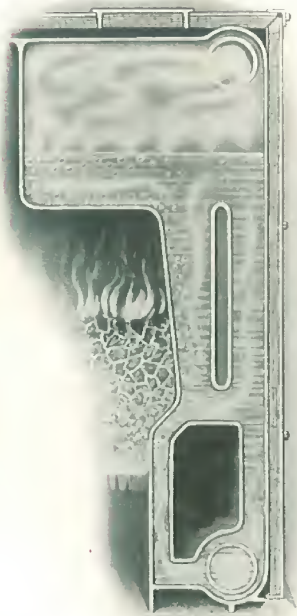
Figure "A": In the upward course of a flow of gases through two connecting arms of flues an equality in the velocity of the flow does not exist throughout because of unbalanced resistance.

Figure "B": In a downward course of a flow of gases an equal velocity in the flow, when retarded by tension or resistance, will be maintained throughout both arms of the flue. This results in equalized tension and enforced rub of the hot gases of combustion against every tiny portion of the flue heating surfaces, and represents what occurs in the reversible flue boiler construction. The employment of this principle in Type "A" boilers results in the extraction of the utmost quantity of heat from the fuel burned.



this type of construction is that it embodies the complete "Cycle Principle" of circulation. This consists of parallel water columns in each half section—as illustrated. The upward flow is in the leg nearest the fire and subjected to the most intense heat, the return or downward flow occurring in the outer and cooler leg. A positive uninterrupted circulation is thus established, which in steam boilers eliminates priming, while in water boilers it insures a free and rapid circulation.

It will be noted that there is a gradual increase in the area of the inner water way as it approaches the water line. This enlargement has the effect of reducing the velocity of the rising column of expanded hot water, as well as of the steam globules in that leg, thus minimizing all disturbing action on the steaming surface.



It is worthy of note that the nipple ports are placed at points immediately over the least agitated part of the water surface, where the flow is downward.

The dome surfaces are largely covered with a film of water and as these surfaces are subjected to the direct heat action of the hot gases, this feature gives an additional advantage to insure the production of dry steam and satisfactory operation of the entire system.

Open View of a Half Section  
Showing free circulation, and  
the liberal dome space



## Generous Dome Space

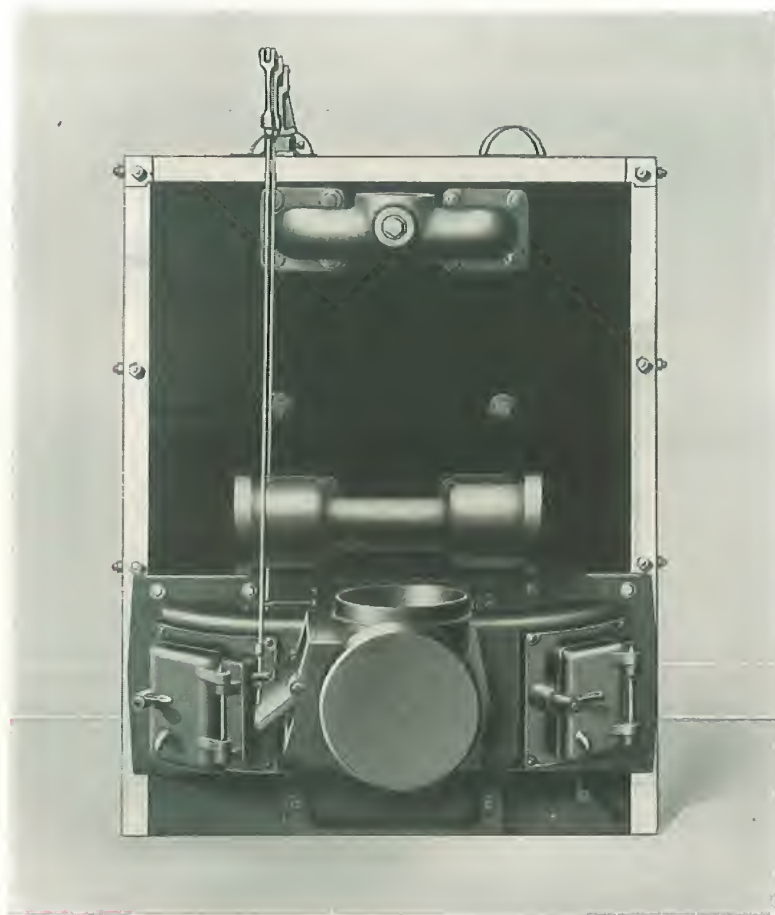
Attention is invited to the large steaming surface and generous dome space, which are proportionately greater than those of any boiler heretofore produced. In the case of steam boilers, dry steam, while for water boilers, rapid circulation are prime factors often neglected in other designs.



IDEAL Type "A" Heat Machine  
Front view, size No. 1, Water, with Hand Control

## For Low Basements

A shallow cellar can not defeat an owner's desire to use an IDEAL Type "A" Heat Machine. With all the features of superiority which have made earlier types of IDEAL Boilers justly famous, here is a low water line boiler to fit very shallow cellars—giving opportunity for such decided pitch

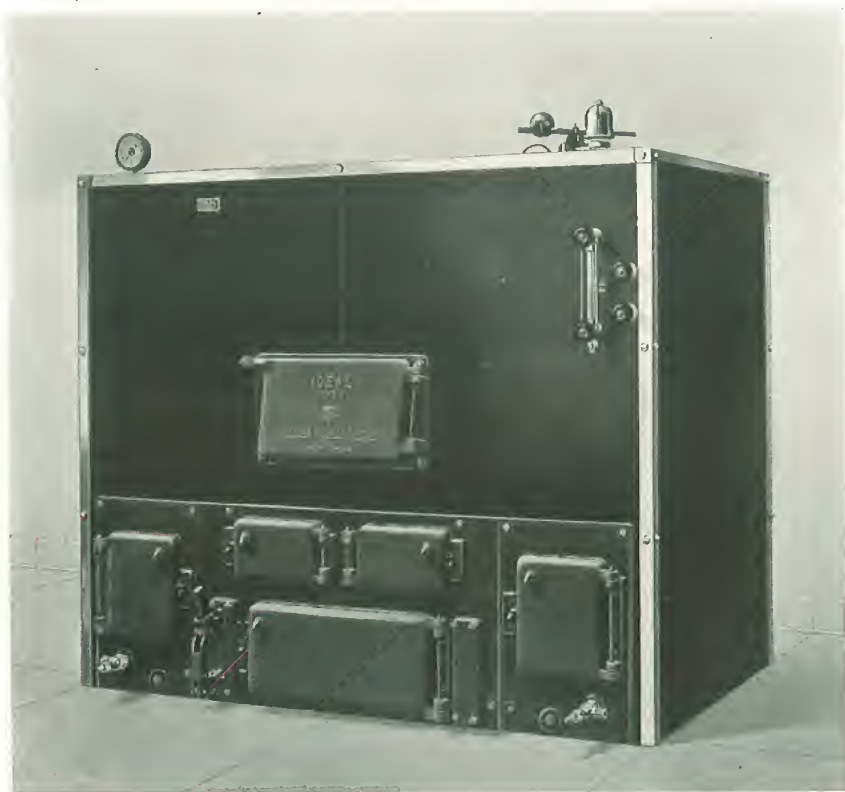


IDEAL Type "A" Heat Machine  
Rear view, size No. 1, Water, with Hand Control

of cellar mains or piping as to thoroughly drain the steam system of the water of condensation, or to insure rapid circulation in the hot water system.

This prevents any liability of "trapping" with its gurgling noises, commonly termed "pounding in the pipes."

Likewise, there is equal advantage in the arrangement of ample head room for smoke-pipe connections—the smoke-pipe flange being placed so ingeniously low (approximately 8 inches above the cellar floor), as will be seen by reference to illustrations on pages 12 and 20.



IDEAL Type "A" Heat Machine  
Front view, size No. 3, Steam

## Leak-Proof Ground Joints Keep Basement Free of Gas and Dust

The sections of the IDEAL Type "A" Heat Machines are easily handled, even in the largest sizes. They are interchangeable and absolutely uniform with respect to all dimensions of heating surface, grate area, fuel capacity, flue openings, etc., regardless of the number of sections assembled in a complete boiler.

The construction of the boiler in two separate and distinct operating halves allows unlimited expansion or contraction of the metal of the boiler in all directions, without



The Automatic operation and long firing periods of the IDEAL Type "A" Heat Machine relieve the housewife of caretaking and anxiety about the temperature of the home. This is experienced in a very gratifying way by users, as described in testimonials, see pages 44 to 46.



subjecting the casting to any strain whatsoever. Furthermore, since the base is part of the section itself, there can be no relative motion such as usually occurs when the base is a separate casting, and subject to a temperature which is entirely different and independent of that of the boiler proper.

The IDEAL Type "A" Heat Machine is composed of a plurality of cast iron sections. Each section is provided on both sides with laterally extending, peripheral ribs and internal fins, which register accurately with corresponding ribs and fins of the abutting sections, and form the up-going and the down-coming gas flues. These projecting fins are accurately faced on special machines designed for the purpose, and when the sections are drawn together and connected by IDEAL Cast Iron Slip Nipples, the contacting edges of the said projecting fins produce a close-fitting, gas-tight boiler.

The *Leak-Proof Ground Joints* furnish a guaranty that the only air entering the boiler must pass through the butterfly draft door in ashpit, which regulates the air for combustion. They also insure uninterrupted gas travel by preventing short circuits and counter-drafts in the flues.

The *Single Base Joint*, when considered in conjunction with the ground joints between sections, represents a distinct advance towards securing a perfectly air-tight boiler and ashpit. It also results in a material saving in fuel, especially during the long periods when the fire is banked.

All surfaces subjected to the action of hot gases are vertical, and consequently offer no support for the accumulation of ashes, soot, etc. This is an important factor for highly efficient transmission of heat during prolonged and continuous operation.

## Insulation that Stops Heat Waste

An inspection of the various illustrations of the IDEAL Type "A" Heat Machine in these pages shows that the Boiler or its sections are inclosed in a metal asbestos-lined jacket, giving the neat and machine-like appearance.

The *IDEAL Metallic Jacket*, built up of heavy sheet iron with a thick asbestos-bound lining, not only insures perfect insulation, but forms a clean and sightly covering for the sections of the boiler proper. This ideal insulation, and which aids so greatly in the general appearance and tidiness of the boiler and its surroundings, will not crumble, absorb dirt or moisture, nor lose its heat-retaining qualities. In fact, its life is that of the boiler itself.

The assembling of this jacket is of the utmost simplicity; the flat rectangular sheets are merely adjusted to the exposed surfaces of the boiler, and held firmly in position at each corner by means of strong, nickeled corner keys bolted together.

A number of comparative tests conducted on all sizes

of the boiler has proved conclusively that the initial cost of this jacket insulation is practically refunded by the saving in fuel during a single heating season.



Nickel-plated Keys

These keys join neatly the asbestos-lined sheets of the IDEAL Metallic Jacket

## Simplicity of Installation

The labor expense is a growing factor in the total cost of a heating installation, and it is a distinct feature of this design that every effort has been made to minimize the labor expense of erecting these boilers.

The comparatively small space occupied by this compact boiler, combined with a remarkably low water line, obviates the necessity of costly pits.

The supply and return outlets consist of single standard tappings situated respectively in the flanged yokes, connecting each half of the boiler at the top and bottom thereof.



Flanged Yoke

This makes for convenient fitting. Also note special tapping in center for blowing off boiler

These flanged joints are made up on ground surfaces both on the yoke and the back sections of the boiler. Placing the single connections for supply and return at the rear reduces the labor of fitting to a minimum.

## Self-Regulation to Meet Weather Fluctuations

The IDEAL automatic regulation is the result of extensive practical experimentation based on the most approved theory pertaining to the subject. This method of regulation, even where the care of a heating plant devolves upon totally inexperienced persons, insures uninterrupted operation by the use of a device as durable as the boiler.

This regulator supplies the motive power for the manipulation of the fresh air butterfly door and the choke damper. (See page 12.)

This regulation is absolutely fool-proof. The regulator lever is connected to the dampers by threaded rods which



are set with a lock nut, so that the regulation does not get out of adjustment. No chains to stretch and become loose.

Regulation is placed on back of boiler where it does not interfere with the firing. The draft door is set to close at the desired temperature or pressure and the choke damper does not operate unless the pressure or temperature goes beyond that point, in which case a further force is exerted upon the damper rods by means of the regulator, and the choke damper then closes.

The ground joint construction of sections and plate-work has made it possible to dispense with the cold air check. The chimney, therefore, remains constantly operative and results in a material saving in fuel.

## Handy Slice-Door and Guard

Where a poor quality of hard coal is used, tending to form clinkers, the slicing door of IDEAL Type "A" Heat Machine will be found most useful. It is placed on a level with the grate; a poker or slicing bar may be run through the door and the



Slicing Coal-Guard

Through this coal-guard the fire may be conveniently sliced with poker, to save excessive shaking of fire



Slicing Door

A great fuel economizer, enabling slight agitation only of fire, in moderate weather

ashes or clinkers may be cleaned off the face of the grates without too greatly agitating the hot coals above. This is particularly economical in moderate winter weather when the fire needs just a little agitation to keep the ashes from gathering too thickly, so that a very little heat in the early morning or at night will take the chill off the rooms.

## Tight Nipple Connections

It is important that a boiler should remain *permanently* water-tight. One of the successful features of all IDEAL Boilers is the method of push-nipple connection for joining the sections or water-ways. Made of the same cast iron as the boiler, the nipple is not affected by expansion or contraction. It is lathe-turned to the thousandth of an inch, and fits into holes made equally exact in the sections. This nipple makes a steam and water-tight joint—and keeps it so.



The IDEAL Connection

Makes the permanently tight water joint

## Selecting Right Size Boiler

The ratings assigned are conservative. They have been established after tests conducted by exact and scientific methods at the Institute of Thermal Research, confirmed by the results obtained from actual installations.

All house heating boilers are at times subjected to extremely heavy loads; for not only are they taxed by variable weather conditions, but periodically they are called upon to heat up rapidly a cold system in a chilled building.

The heaviest load is imposed upon a boiler during the first hour of the morning, when the temperature of the house is being raised to normal. According to the installation and the piping system, this additional tax in average winter weather may equal from sixty to one hundred percent over the equivalent of direct radiation supplied to the boiler. (See Figs. 1 and 2 on page 29.)

Now, while any boiler connected to a radiator load equivalent to its rating will carry this load, provided the piping

is perfectly insulated and the system and building are warmed to the desired temperatures, it will not possess sufficient capacity to respond to the variable needs or sudden changes in temperature; nor will it afford the quick response demanded for satisfactory service to the owner.

It is, therefore, obvious that to determine the proper size of boiler for a given installation, it is desirable to make a careful computation of the total load to be placed upon it, either in terms of direct radiation or its B. t. u. equivalent.

In selecting a boiler where conditions are normal with respect to the installation, the piping system, the character of construction and the exposure of the building, a boiler should be selected and specified with a rated capacity of from 50 to 75 percent in excess of the net direct radiator



Institute of Thermal Research, Buffalo

Where IDEAL Boilers are scientifically tested and their working capacities carefully rated. The best equipped laboratory of its kind in the world.



surface, or its B. t. u. equivalent.

Before the size of the boiler has been determined, it is advisable to ascertain whether sufficient radiator surface has been provided.

This has an important bearing on the boiler size, for in case of insufficient radiator surface the heat emission per square foot of *steam* is in excess of 240 B. t. u.'s, while that for *water* is greater than 150 B. t. u.'s per hour.

This condition would place an appreciable extra tax on the boiler and in such cases it will be desirable and consistent to add *more* than 60 percent to the net radiator surface in selecting the boiler, in order to provide the necessary capacity to insure satisfactory operation and fuel economy.

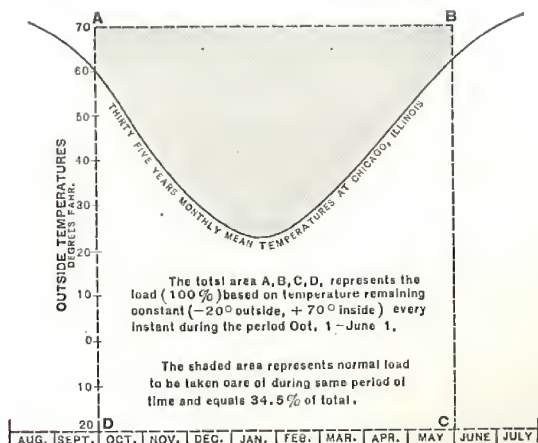


Figure 2. See note below

Note—Figures 1 and 2 show *actual* compared with theoretical season's fuel demand. In other words, the coal required for a heating season is about one-third the quantity that would be used if all the radiation were in constant use every hour of the day and night. It may therefore be stated generally that in the average winter season there are relatively 100 days of mild or moderate winter weather, 80 days of cold weather, and 40 days of very cold or high-windy weather.

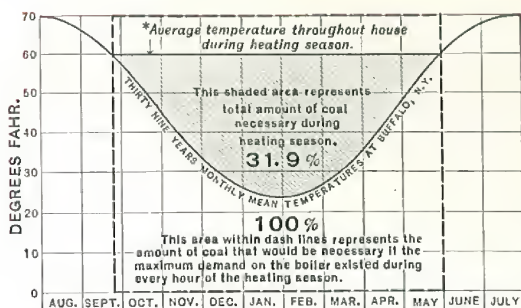


Figure 1. See note below

necessary capacity to insure satisfactory operation and fuel economy.

In selecting the right size boiler to be used for any installation, the Efficiency and Attention Curves (pages 34, 35 and 36), should be carefully studied.

## Built to Exacting Standards

Superior workmanship and the best mixtures of iron go to make IDEAL Type "A" Heat Machines. All joined parts are accurately finished—each is machined and fitted to an exact standard of size. They are tested at 80 pounds hydrostatic pressure before they leave the works, though sold to be used under a maximum working pressure of 15 pounds for steam, 30 pounds for hot water.

Every part receives careful attention. The grate connections and pins, hinge-pins, door-handles, screws, rivets, bolts, etc., are very carefully made and fitted. The latch so closely fits the catch-nose that the doors are drawn up flush and tight to the frame without cracks, and do not warp and spring open, allowing gas and dust to escape. The labor-saving flow and return headers supplied are accurately machined, while the metallic jacket is made and fitted in a shop specially equipped for this purpose.

## "Easy-to-Run" Features

IDEAL Type "A" Heat Machines are rated most conservatively and have a relatively large fuel capacity; consequently, the amount of attention required is quite independent of the most varied climatic and weather conditions.



Large Sized Fuel Door  
Makes easy firing through the roomy fuel door

The elimination of all special fittings and connections from the front and sides of the boiler adds greatly to its accessibility.

The sizes of all doors have been considerably

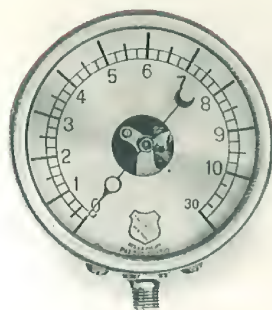
increased, thus providing ample openings to the fire box, the grate and the ashpit. A slicing-door, placed on a level with the grate, permits stoking the fire without shaking the grates or too great agitation of the fire. This saves fuel, particularly on milder winter days. Slicing-door also permits easy removal of any clinkers—though the automatic regulation practically prohibits the formation of clinkers.

The grate bars of rocking type are of extra heavy construction. The shaking and dumping mechanism is improved and its radial motion increased.

Obviously, such features as refined workmanship, Ideal metallic jacket, and flow and return headers justify the higher price asked for the IDEAL Type "A" Heat Machines.

The additional price is further annually offset by the greater capacity and efficiency, and ideal regulation.

The general design of all parts of the IDEAL Type "A" Heat Machines has been evolved by an organization intimately in touch with the practical requirements of heating installations since the infancy of that industry. The result of such experience is reflected in the superior operation and fuel economies of this boiler, as confirmed by the results obtained and recorded in observing many actual installations.



Improved Retard Gauge used on Steam Boilers

Sensitve and registers fractional parts of pound pressure



Poker, Hoe, and Wire Flue Brush

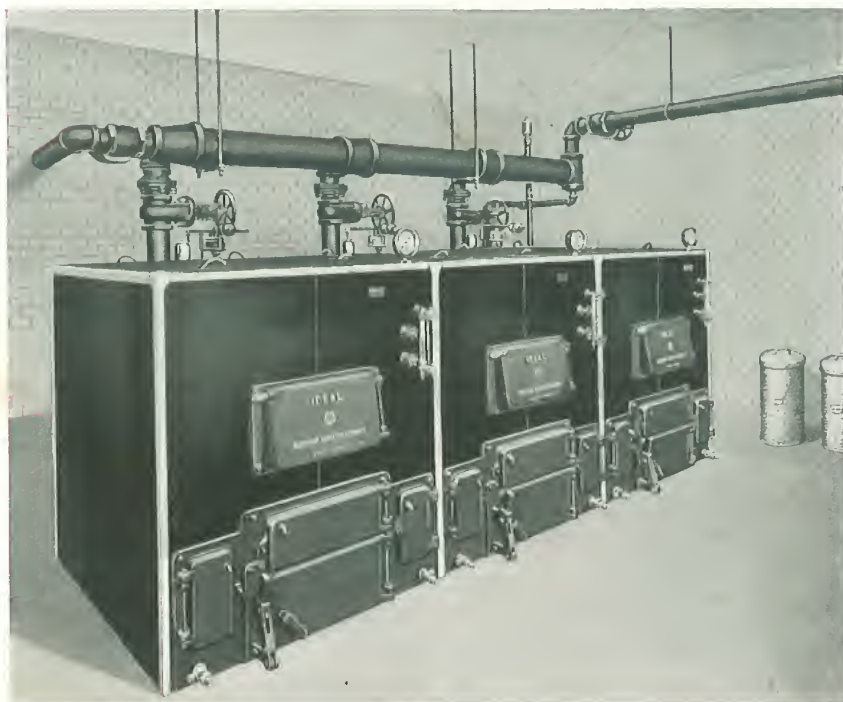
These simple firing tools are supplied, and none other are needed



## Boilers in Batteries

An up-to-date coal-saving and attention-saving practice is offered in a battery installation of two or more IDEAL Boilers. According to changing weather conditions, as between early spring or fall and the more severe demands of mid-winter, one or several boilers may be put into service, as needed.

IDEAL Type "A" Heat Machines are thus being installed in batteries in many buildings, some of which are not very large, nor their heating requirements very heavy. The fuel economy thereby made possible is evident.



### An Attractive, Compact Battery Installation

The compactness and low water line feature of the IDEAL Type "A" Heat Machine make a head-free, airy, and attractive boiler room

## Easily Put in Old Houses

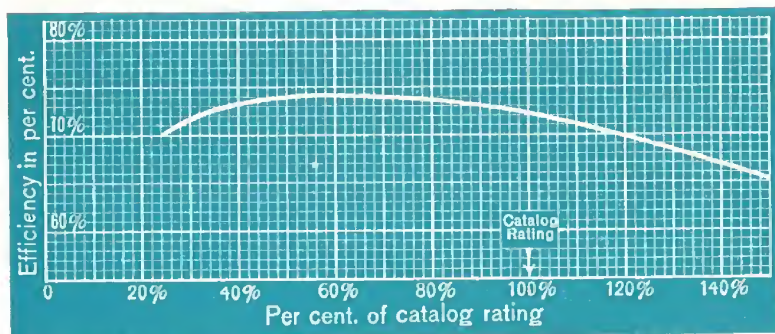
All IDEAL Type "A" Heat Machines are made in sections so that even their largest parts can be carried through an ordinary size doorway. They can be quickly installed in old houses without disturbing the occupants or any tearing up. In fact, in old-fashioned houses they can be erected, including the necessary piping and radiators, without removing the stoves or the hot-air furnace until the new heating outfit is ready to fire up. Quickly set up during winter weather when old, crude heaters get badly worn or commence to collapse. Should the building later be increased in size (65 percent of all buildings are remodeled), extra sections can be added to meet the proportionately larger heating requirements.

This feature, together with the fact that they do not wear out, makes our heating outfits strong building investments which uphold the best property values—whether to occupy, rent, or sell.

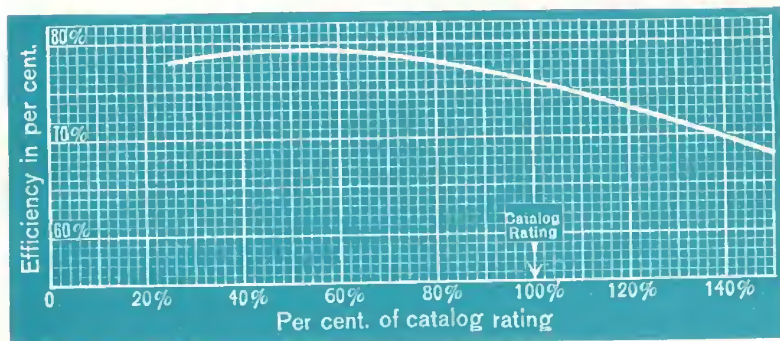
## Our Full Guarantee

Our methods of conducting tests of the IDEAL Type "A" Heat Machines are accepted as authoritative by architects and engineers. This is assurance of accuracy and quality. We offer this boiler as in every way dependable and durable, backed by our reputation and full guarantee. A card of few simple rules for obtaining ideal results is sent with each boiler. Our interest does not cease with the sale of each IDEAL Type "A" Heat Machine, and we are always glad to be of any service.

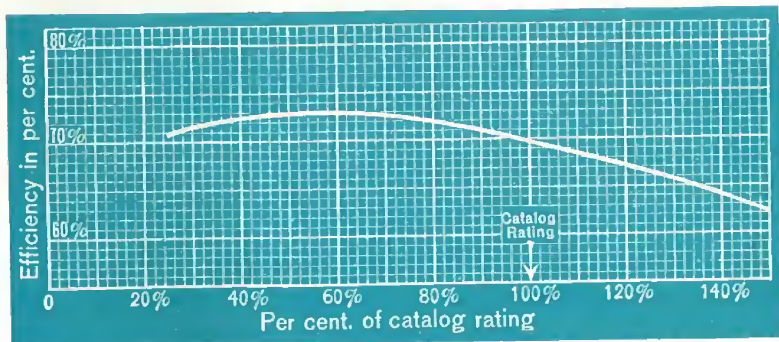
List of prominent users will be sent on request to anyone who desires to investigate personally or by letter.



Efficiency Curve, Size No. 1. See page 36



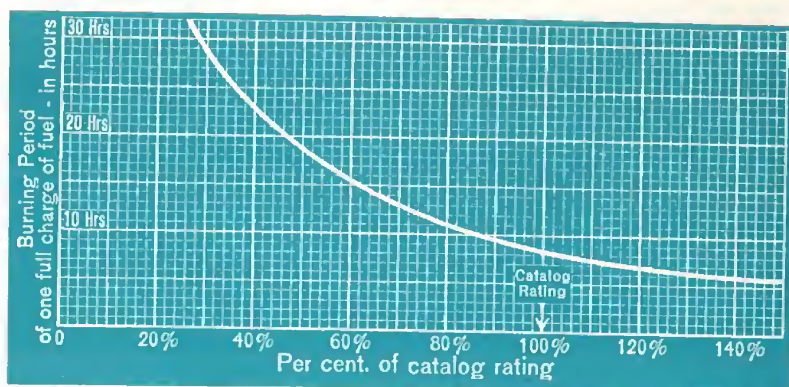
Efficiency Curve, Size No. 2. See page 36



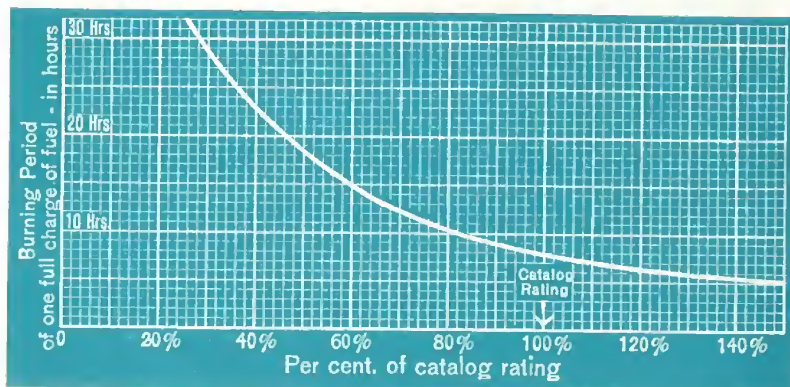
Efficiency Curve, Size No. 3. See page 36



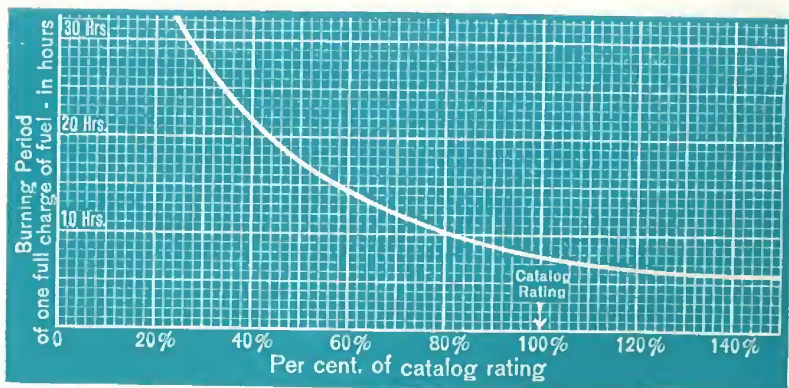
# IDEAL TYPE "A" HEAT MACHINES



Attention Curve, Size No. 1. See page 36



Attention Curve, Size No. 2. See page 36



Attention Curve, Size No. 3. See page 36



## Efficiency Curves

The heating season is approximately 100 days of moderate winter weather, 80 days of cold weather, 40 days of very cold or high-windy weather. The test charts on page 34 show that at the high rate of combustion required during the 40 days of coldest or high-windy weather (which constitutes only 18 percent of the entire heating season) the Type "A" will easily carry its full load, as per catalog rating, at a very high efficiency developed out of each ton of coal burned. But, *and most important*, during the other 180 days of average winter weather (82% of the entire heating season), when only a low rate of combustion is required, the Type "A" Heat Machine shows *a still higher* efficiency. Ordinary types of boilers show much less efficiency during this long period, many of them showing below 60% efficiency. We believe that in comparison with any other type of boiler now on the market these test charts show IDEAL Type "A" Heat Machines to yield the highest percentage of heat obtained over so long a period, per ton of coal burned.

## Attention Curves

The test charts on page 35 show that the Type "A" Heat Machine will carry its full load or catalog rating for more than 8 hours during the coldest weather period (which constitutes only 18 percent of the heating season). Whereas, during the average of 180 days of more moderate winter weather (which constitutes 82 percent of the entire heating season), due to the lessened demand upon and the higher efficiency of the boiler, it then will run without attention, on one full fuel charge, from 10 to 30 or more hours, depending upon the daily weather fluctuations.

From the dependable ratings of IDEAL Type "A" Heat Machines, the owner may select such larger size or capacity of boiler as will run without attention for 10, or 12, or 16 hours, *or more*, during the *extreme* cold weather period.

## Summary of High Efficiency Features

Combustion	Liberal Direct Heating Surface; Deep Fuel Bed; Complete Combustion; Long Burning Duration.
Gas Travel	The Reversible Flue; Long, Frictionless Passages; Maximum Heat Extraction; Balanced Combustion; High Evaporative Power.
Circulation	The Siphon Principle; Greatest Heat Absorption; Rapid Steam Generation; Noiseless, Regular Operation.
Steam Dome	Large Steaming Area; Superheated, Dry Steam; Even Distribution.
Interchangeable Half-Sections	Leak-proof Ground Joints; Uninterrupted Flue Travel; Quick, Easy Assembling; Uniformly Progressive Proportions.
Cast-On Base	Water-cooled, Air-tight Ashpit; Combination Section and Base; Absolute Combustion Control; Reduced Number of Parts.
Top Clean-out	Removable Gas-tight Covers; Accessibility of all Heating Surfaces; Increased Heat Transmission; Vertical Self-Cleaning Flues.
Insulation	IDEAL Metallic Jacket; Durable and Handsome Covering; Perfect Non-Conduction; Cleanly, Neat Addition to Cellar.
Installation	Low Water Line; Compact and Simple Construction; Minimum Floor Space; Single Flow and Return Connections.
Regulation	IDEAL Automatic; Positive Draft Control; Substantial Frictionless Mechanism; Instantaneous Adjustment of Supply to Demand.
Operation	Absolute Reliability; Greatest Simplicity; Utmost Economy.

## IDEAL Type "A" Steam Heat Machines

Number	Ratings Sq. Ft.	Number of Sections	B. t. u. Output Thousands	Fuel Capacity Hard Coal Pounds	Grate Area Sq. Ft.	Length Inches See "L"
1-A- 4	450	4	108	150	1.9	22
1-A- 5	600	5	144	200	2.5	27½
1-A- 6	750	6	180	250	3.1	33
1-A- 7	900	7	216	300	3.7	38½
2-A- 5	1100	5	264	350	4	27½
2-A- 6	1400	6	336	450	5	33
2-A- 7	1700	7	408	550	6	38½
2-A- 8	2000	8	480	650	7	44
2-A- 9	2300	9	552	750	8	49½
3-A- 5	2600	5	624	800	8	38
3-A- 6	3250	6	780	1000	10	46
3-A- 7	3900	7	936	1200	12	54
3-A- 8	4550	8	1092	1400	14	62
3-A- 9	5200	9	1248	1600	16	70
3-A-10	5850	10	1404	1800	18	78
3-A-11	6500	11	1560	2000	20	86

Prices are available through the Heating Trade and are shown on current Trade Discount Sheets.

Size	No. 1	No. 2	No. 3
Height, inclusive of trimmings, inches	56	66	73
Height of water line	35	43	49
Supply tapping, inches	4	5	8
Return tapping, inches	2	2½	5
Smoke pipe diameter, inches	9	13	18
Fuel recommended, hard coal	Stove or Small Egg	Small or Large Egg	Large Egg

For additional measurements, see page 40.

For chimney flue sizes recommended, see page 44.



## IDEAL Type "A" Water Heat Machines

Number	Rating Sq. Ft.	Number of Sections	B. t. u. Output Thousands	Fuel Capacity Hard Coal Pounds	Grate Area Sq. Ft.	Length Inches See "L"
1-A- 40	750	4	112	150	1.9	22
1-A- 50	1000	5	150	200	2.5	27 $\frac{1}{2}$
1-A- 60	1250	6	187	250	3.1	33
1-A- 70	1500	7	225	300	3.7	38 $\frac{1}{2}$
2-A- 50	1800	5	270	350	4	27 $\frac{1}{2}$
2-A- 60	2300	6	345	450	5	33
2-A- 70	2800	7	420	550	6	38 $\frac{1}{2}$
2-A- 80	3300	8	495	650	7	44
2-A- 90	3800	9	570	750	8	49 $\frac{1}{2}$
3-A- 50	4400	5	660	800	8	38
3-A- 60	5500	6	825	1000	10	46
3-A- 70	6600	7	990	1200	12	54
3-A- 80	7700	8	1155	1400	14	62
3-A- 90	8800	9	1320	1600	16	70
3-A-100	9900	10	1485	1800	18	78
3-A-110	11000	11	1650	2000	20	86

Prices are available through the Heating Trade and are shown on current Trade Discount Sheets.

Size	No. 1	No. 2	No. 3
Height, inclusive of trimmings, inches	56	66	73
Supply tapping, inches	4	5	8
Return tapping, inches	4	5	8
Smoke pipe diameter, inches	9	13	18
Fuel recommended, hard coal	Stove or Small Egg	Small or Large Egg	Large Egg

For additional measurements, see page 40.

For chimney flue sizes recommended, see page 44.

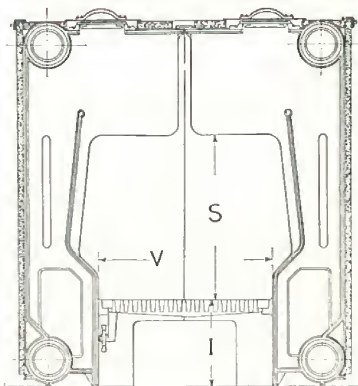
## IDEAL Type "A" Measurements

Distances in inches on the outlines of IDEAL Type "A"  
Heat Machines

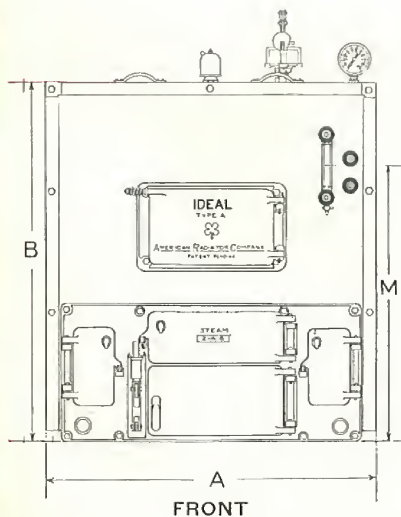
	Size No. 1		Size No. 2		Size No. 3	
	Water	Steam	Water	Steam	Water	Steam
A	35½	35½	50½	50½	76½	76½
B	46½	40½	55¾	55¾	63	63
C	15½	15½	17¾	17¾	23½	23½
E	11¾	11¾	11	11	13	13
I	12	12	13	13	15	15
L*						
M		35		43		49
N	6¼	7	9	7	9⅝	12⅝
O	21¾	21¾	26	26	29	29
P	9	9	13	13	18	18
R	44½	44½	54	54	61¼	61¼
S	19½	19½	25	25	25	25
T	4¾	4¾	5⅝	5⅝	7⅝	7⅝
V	16	16	26	26	36	36

\* (See pages 38 and 39)

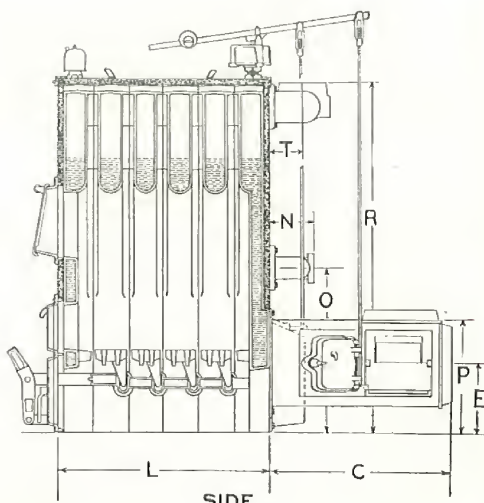
Fire Door Dimensions: Size No. 1, 14½ x 9 inches; size No. 2, 18 x 10 inches; size No. 3, 22 x 10 inches.



CENTER SECTIONS



FRONT



SIDE

## Regular Equipment

*Supplied with all Type "A" Steam Heat Machines*

No. 1—IDEAL METALLIC JACKET—Consisting of heavy, black-japanned sheet iron covers with thick asbestos air-cell insulation, including heavy nickel-plated sliding keys for readily applying to boiler.

No. 2—IDEAL AUTOMATIC REGULATION—Consisting of an all-metal IDEAL Steam Regulator, including lever, counter-weight, and adjustable rods—positive connection to draft door and damper.

No. 3—WATER COLUMN—10-inch glass with heavy brass— $\frac{1}{2}$ -inch gauge cocks and guards— $\frac{1}{8}$ -inch pet cock.

No. 4—TRI-COCKS— $\frac{3}{8}$ -inch brass.

No. 5—IDEAL STEAM GAUGE—Improved type— $4\frac{1}{2}$ -inch face with Bourdon spring and special water seal plug—clear and accurate graduation for vapor and low pressure.

No. 6—DRAW-OFF COCKS—Two, of solid brass construction.

No. 7—FIRING TOOLS—Poker, hoe with handle, wire flue brush with jointed handle.

*Supplied with all Type "A" Water Heat Machines*

No. 1—IDEAL METALLIC JACKET—Same as No. 1 above.

No. 2—IDEAL DAMPER CONTROL—Consisting of bracket, handwheel with screw, lever, and adjustable rods—positive connection to draft door and damper.

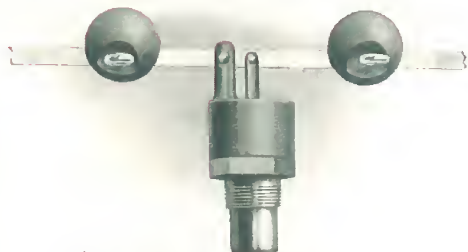
No. 3—DRAW-OFF COCKS—Same as No. 6 above.

No. 4—FIRING TOOLS—Same as No. 7 above.



## Recommended Equipment

*Supplied only at Extra Charge, as Listed*



IDEAL Water Regulator

A simple all-metal regulator which automatically controls the draft to maintain a constant temperature of the water at any point between 100° and 200° F.



IDEAL Safety Valve

Furnished with Steam Boilers as heretofore, unless otherwise specified, and charge made as per list below.



IDEAL Hot Water Thermometer

Gives accurate temperature readings of the water. Glass bulb of mercury is protected by steel tube. Made for 1/2-inch pipe connection.



IDEAL Altitude Gauge

Indicates accurately the height of the water in the system. The dark (or red) hand registers the required height of water. A glance comparison tells whether water is needed.

### List Prices

Stock No. 945, IDEAL Water Regulator. . . . .	\$20.00
Stock No. 540, IDEAL Hot Water Thermometer . . . . .	5.00
Stock No. 578, IDEAL Altitude Gauge . . . . .	12.20

### IDEAL Safety Valves

1"	1 1/4"	1 1/2"	2"	2 1/2"	3"
\$6.00	\$6.75	\$8.25	\$11.25	\$26.00	\$37.50

## Importance of Chimney Flues

The value of the flue depends on area and velocity. Velocity alone is no proof of good draft—there must be also sufficient area to carry the gases.

The chimney-top should run above the highest part of the roof and should not be less in height than shown in table.

The chimney should be so located with reference to any higher buildings nearby that wind-currents will not form eddies and force the air downward in the shaft. A shifting cowl, which will always turn the outlet away from the adverse currents, will promote better draft.

The flue should run as nearly straight as possible from the base to the top outlet. The outlet must not be capped so that its area is less than the area of the flue. The flue should have no other openings into it but the boiler smoke pipe. Sharp bends and offsets in the flue will often reduce the area and choke the draft. The flue must be free of any feature which prevents full area for the passage of smoke, etc.

If the flue is made of tile the joints must be well cemented, or all space between the tile and brick-work filled in tightly. There must be no open crevices into the flue where the sections meet—otherwise the draft is checked.

If the flue is made of brick, the stack should have outside walls at least eight inches thick to insure safety. The inside joints should be well struck; each course should be well bedded and free from surplus mortar at the joints.

If there is a soot-pocket in the flue below the smoke pipe opening, the clean-out door of same should always be tightly closed. If this chimney flue has other openings in it—from fire-places or other connections—these openings will check the draft and prevent best heating results from the boiler.

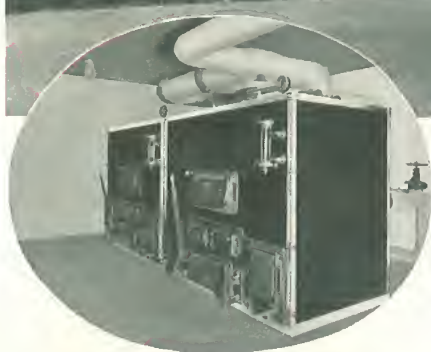
The smoke pipe should not extend into the flue beyond the inside surface of the flue, otherwise the end of the pipe cuts down the area of the flue.

The joints, where the smoke pipe fits the smoke-hood of the boiler, should be made tight with boiler putty or asbestos cement. Asbestos cement should be used to seal the joint between smoke pipe and chimney opening.

## Chimney Sizes Recommended

Number of Boiler	HEIGHT OF CHIMNEY IN FEET Measured from Grate Line of Boiler						
	30	35	40	45	50	55	60
1-A- 4 or 40	8 x 8	8 x 8	8 x 8				
1-A- 5 or 50	8 x 8	8 x 8	8 x 8				
1-A- 6 or 60	8 x 12	8 x 8	8 x 8				
1-A- 7 or 70	8 x 12	8 x 12	8 x 8				
2-A- 5 or 50		8 x 12	8 x 12	8 x 8			
2-A- 6 or 60		8 x 12	8 x 12	8 x 12			
2-A- 7 or 70		12 x 12	12 x 12	8 x 12			
2-A- 8 or 80		12 x 16	12 x 16	12 x 12			
2-A- 9 or 90		12 x 16	12 x 16	12 x 12			
3-A- 5 or 50		16 x 20	16 x 16	12 x 16			
3-A- 6 or 60			20 x 20	16 x 20	16 x 16	12 x 16	12 x 12
3-A- 7 or 70			20 x 20	16 x 20	16 x 16	12 x 16	12 x 12
3-A- 8 or 80			20 x 24	20 x 20	16 x 20	16 x 16	12 x 16
3-A- 9 or 90				20 x 20	16 x 20	16 x 20	16 x 16
3-A-10 or 100				20 x 24	20 x 20	20 x 20	16 x 20
3-A-11 or 110					20 x 24	20 x 24	20 x 20

Above chimney flue sizes are based on sea level conditions—add 2% to area for each 500 feet elevation above sea level. See page 236 "IDEAL FITTER" for standard sizes of tile and brick chimney flues.



The above attractive residence is the home of Mr. Thomas A. Edison in West Orange, N. J., now warmed by two IDEAL Type "A" Heat Machines. Only one is used in fall, and spring and during moderately cold weather, and both are turned on when real winter weather sets in. This battery of Type "A" Heat Machines has performed with great economy, having saved 26 tons of coal or approximately 32 per cent over the old boilers which they displaced.

## Testimonials

Stanley Field, of Marshall Field & Company, Chicago, writes:

"About the two IDEAL Type "A" Boilers installed in my country home: I beg to advise that during the average weather one of these boilers has kept the house at a comfortable temperature, and in excessively cold weather two have been used. While I am not able to tell you the exact saving in fuel, I know that it has been very large.

In the cottage, stable and garage group of buildings, where two IDEAL Type "A" Boilers were installed, one for the garage and one for the stable and cottage, the results have been equally satisfactory. The garage, where we formerly were unable to get any heat at all, has been kept at a comfortable temperature all winter, likewise the other buildings, with a very noticeable saving in fuel."

W. A. Cromwell, New York Cotton Exchange, writes:

"Pertaining to the IDEAL Type "A" Boiler, as to efficient and satisfactory results would say that I am much pleased with it. Coal consumed this last winter, 6 months firing, was 12 tons of stove size. This boiler accommodates 12 radiators heating 11 rooms and halls to a temperature of 72 degrees—exterior temperature 20 degrees above zero, with no pressure at the boiler, heating with vapor only."



## Testimonials

Louis H. Porter, Counsellor at Law, 30 Broad Street, New York, writes:

"I built a new house in 1915 and installed in it a large boiler of the ordinary type. My house is in an exposed situation and the boiler capacity was constructed to heat the house in extreme weather. In the winter of 1916 to 1917, which was the first winter that we occupied the house, I burned *one hundred thirty tons* of coal in this furnace. This coal consumption seemed to me very excessive, and I, therefore, arranged in the summer of 1917 to have the new IDEAL Type "A" Boiler installed. I had a battery of two put in with the idea that I could operate them in series in very cold weather and that one boiler alone would be sufficient in moderate weather. You will recall that the winter of 1917 to 1918 was extremely severe and at the same time there was a great shortage of coal. In order to economize on coal consumption, I only ran one of the Type "A" boilers through that winter, and I kept the house comfortably warm on a total coal consumption of about *seventy-six tons*. The next winter, that is the one of 1918 to 1919, was unusually warm. We had no trouble in keeping the house warm with one boiler on a total coal consumption of *fifty-eight tons*."

Scott C. Dyer, Architect, 1531 First National Bank Building, Chicago, writes:

"I am glad to say with a great deal of gratification and sincerity, that the IDEAL Type "A" Boiler installed in my residence has proved a greater success than I had contemplated.

I have experimented with a great many boilers and have found the Type "A" to be as near perfect as possible. About three years ago I installed one of them in the coal office and service building of the Miller & Banker Coal Company, also one in the coal office and service building of the Milton E. Robinson Coal Company, and have had an opportunity with both of these boilers to experiment with all classes of coal and under every imaginable condition, and in every instance they have proved a wonderful success.

I personally urge every client of mine to install one of these boilers.

I consider that you have benefited the building business a great deal by being able to put this class of a boiler on the market."

B. J. Stumm, Cashier of the Yorkville National Bank, Yorkville, Illinois, writes:

"The IDEAL Type "A" boiler has certainly done everything it was supposed to do and we surely had a good winter here to try it out. My house has not varied over two degrees since the first of November and you know we have had some cold weather. In regard to the consumption of coal will say that I have not used any more than last winter and have heated a house twice as large.

I am very much pleased to recommend this type of boiler to anyone."

Charles Vezin, Jr., 261 Palisade Avenue, Yonkers, N. Y., writes:

"My boiler is what you describe as an IDEAL Type "A", which is rated for 1800 square feet of radiating surface. In our houses there are 27 radiators, with 973 square feet of radiating surface. The heating apparatus is controlled by your thermostat.

The house was automatically kept at around 68 degrees, with a variation practically imperceptible. You can imagine our satisfaction by my recalling to you that in the house we formerly occupied (a smaller house) we used much more coal and in some of the windy cold weather we had not been able to get portions of the house warmer than 45 degrees with the furnace going, aided by two open fires and two oil stoves. In the house in such weather my wife often had to attend the furnace eight or ten times a day, while in our new house, with your equipment, she has almost forgotten that a boiler exists. Except in my absence from home, she has not had to attend the IDEAL Type "A" once this season.

## Testimonials

William M. Crane, President of William M. Crane Company, Manufacturers of "Vulcan" Gas Appliances and Bray Burners, New York City, writes:

"In regard to the IDEAL Type "A" boiler in my residence at Beechhurst, it has been in operation for two years and has given very good satisfaction indeed. The number of tons of coal burned varied so much with the weather between the winters of 1918 and 1919 that it is impossible to give any data. It burned at least 40 percent less coal this year than last."

W. C. & P. C. Heidelberger, Astral Apartments, 180 Franklin St., Brooklyn, N. Y., writes:

"It is with pleasure I send you this recommendation on your 3-A-8 IDEAL Type "A" Heat Machine, as we have never made an investment so satisfactory in all our experience. In 1918 we used a little over *one hundred tons* of coal (pea coal) in our former boiler. In 1919 after installing the IDEAL Type "A" Boiler we used not quite *sixty tons* of coal. In 1920-21 we used *fifty tons* of stove coal, hence the satisfaction and the saving. Our offices and apartments were heated without effort."

W. E. Nichols, Manufacturer of Fine Butchers' Tools, Greenfield, Mass., writes:

"Referring to the IDEAL Type "A" Boiler which I had put in my house February 10th, last. I have used the boiler three months and it is very satisfactory, indeed, although we have not had any very severe weather since the boiler was installed, but it is surely a heat machine and consumes *one-third less coal* than any boiler I have had anything to do with.

The most surprising thing is what becomes of the clinkers and ashes. They seem to be consumed somehow, as I get less ashes in three days now than I previously had in one day from the boiler which I took out.

During the moderate winter weather we had in March I attended the boiler only once a day and the temperature in my house would not vary over two degrees day or night, the fire being under thermostatic control.

I am very much pleased with the machine, as it works beyond my expectations."



This famous old Colonial mansion in Augusta, Maine, the former home of Hon. James G. Blaine, and now the Executive mansion of the Governor of Maine, is modernized by an IDEAL Type "A" Heat Machine and AMERICAN Radiators.

## List of Showrooms of AMERICAN RADIATOR COMPANY

NEW YORK	104-108 West Forty-second Street
NEW YORK (BRONX)	E. 149th and Harlem R. Terminal
BOSTON	129-131 Federal Street
PROVIDENCE	54 Exchange Place
WORCESTER	58 Front Street
SPRINGFIELD (MASS.)	823 Third Nat'l Bank Building
PORTLAND (ME.)	416-18 Commercial Street
NEW HAVEN	S. Front and River Streets
ALBANY	3 and 4 The Plaza
NEWARK	492 Broad Street
READING	103 N. 6th Street
PHILADELPHIA	115 North Broad Street
HARRISBURG	110 North Second Street
WILKESBARRE	54 West Market Street
BALTIMORE	336 North Charles Street
WASHINGTON	1308 H. Street, N. W.
RICHMOND	421 N. Seventeenth Street
NORFOLK	207-11 Royster Building
SYRACUSE	305 Union Building
ROCHESTER	127 Cutler Building
BUFFALO	693 Main Street
PITTSBURGH	300 Wood Street
CLEVELAND	1848 Euclid Avenue
DETROIT	159 W. Jefferson Avenue
GRAND RAPIDS	44 Division Avenue, N.
CINCINNATI	237 W. Fourth Street
DAYTON	921 North Main Street
COLUMBUS	310 E. Broad Street
LOUISVILLE	331 Guthrie Street
ATLANTA	508 Candler Building
BIRMINGHAM	703-10 American Bank Building
NEW ORLEANS	714 Canal-Commercial Bank Building
CHICAGO	816-822 South Michigan Avenue
PEORIA	416 Fulton Street
MILWAUKEE	102-106 Sycamore Street
INDIANAPOLIS	213 North Pennsylvania Street
ST. LOUIS	410 N. Broadway
DES MOINES	521-522 Hubbell Building
MINNEAPOLIS	930 Nicollet Avenue
ST. PAUL	688 Hampden Avenue
DULUTH	227 West First Street
OMAHA	413-417 South Tenth Street
KANSAS CITY	1230 Walnut Street
DENVER	402 Seventeenth Street
SAN FRANCISCO	Second and Townsend Streets
LOS ANGELES	100 San Fernando Arcade
SEATTLE	1219-21 Fourth Avenue
PORTLAND (ORE.)	413 Yeon Building
SPokane	1019 Paulsen Building

At all these public showrooms we cordially invite the calls of all who may wish to inspect samples of IDEAL Boilers and AMERICAN Radiators. They are also on exhibition in the stores of many dealers throughout America and Europe, and in practically every city, village or farming community one or a number may be seen in regular operation.









IDEAL

Type A

Heat Machine